## ABSTRACT OF THE DISCLOSURE

Self-assembling fusion proteins and nucleic acids encoding the same are provided. The subject fusion proteins include a first dimer forming oligomerization domain and a second tetramer forming oligomerization domain rigidly linked to each other. Also provided are regular structures made up of a plurality of self-assembled fusion proteins of the subject invention, and methods for producing the same. The subject fusion proteins find use in the preparation of self-assembled nanostructures, e.g., two-dimensional layers and three-dimensional networks, which structures find use in a variety of different applications.

B, F & F Ref: UCAL-135CIP       20
UC Ref: 1999-246-3
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